

A conceptual enquiry into communities of practice as praxis in international doctoral education

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Abstract

Undertaking a PhD entails diverse and multi-faceted challenges as doctoral researchers enter a distinct academic culture that requires transition to a new level and threshold of learning – with both knowledge acquisition and production at the core. While doctoral researchers are expected to secure different dimensions of knowledge, which necessitates meaningful ‘dialogue’ with experts, the colossal task is still ironically associated with isolated doctoral experience and somewhat limited postgraduate supervision provision. With the extra concerns typically confronting the international doctoral cohort, the pressure tends to be intensified, and may lead to psychological well-being concerns. Nevertheless, there is evidence from the literature that highlights the often unacknowledged forms of learning opportunities and support mechanisms via community participation. By employing communities of practice as the main framework, this conceptual paper exemplifies the crucial role played by these communities – how these communities serve to scaffold doctoral researchers’ academic progress, support their psychological adjustments, and reinforce the crucial, but perhaps limited, formal doctoral support provision. By featuring effective examples of educational praxis via these communities, our paper offers a holistic understanding of formal and informal infrastructures as part of the wider doctoral ecology with a view to achieving a more holistic and meaningful doctoral experience.

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The present conceptual paper offers several distinct contributions to research on international doctoral researchers. First, this paper is a product of a collaboration among a group of international doctoral scholars, which draws upon an examination of original studies contextualised in international doctoral

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researchers' engagement in communities of practice (CoPs), and their role as active embodiments of education-based practice (praxis) (Wenger 2000; 2010). Second, this paper reflects the group's engagement in its own casual community, which entailed active participation in an authentic writing exercise that offers a novel, supportive, and transformative academic experience (i.e., Wilmot & McKenna, 2018). Third, this paper contributes to timely discussions concerning the increasing psychological well-being concerns among doctoral researchers (see Barry et al., 2018; Levecque et al., 2017; Schmidt & Hansson, 2018). We employ the term 'doctoral researchers' as it is not only more inclusive, but it also reduces the power differential between supervisors and supervisee, especially since we argue that tacit learning can be acquired in various contexts, for example, different communities.

This paper clarifies the common challenges for international doctoral researchers and then explores the implications of these challenges (e.g., psychological well-being) using a CoP framework. Overall, this paper argues for the strong interconnections among the different aspects constituting doctoral ecology, highlighting the role of CoPs as an effective praxis. This paper also presents a model as a means of synthesising the knowledge hereby contributed, as a better understanding of the utility of these communities may inspire improvements of the overall international doctoral learning experience at the institutional level. Ethics approval was not necessary to undertake this research.

Pressures of doctoral education

Doctoral researchers are faced with the intellectually demanding task of undertaking an original piece of research, with the intention of offering a contribution to existing knowledge. Doctoral studies necessitate mastery of various forms of knowledge and skills (e.g., subject, research, or discipline-related) both in formal and tacit ways (Delamont & Atkinson, 2001). Wisker, Robinson, and Shacham (2007) propose that all research is a form of 'dialogue' with others, yet the doctoral experience often remains an isolated experience despite postgraduate supervision and some courses. Wisker et al. (2007) also argue doctoral education is inherently high-pressure, which may contribute to the increasingly explicit links between undertaking such programmes and the poor mental health of doctoral researchers (see Barry et al., 2018; Levecque et al., 2017). The literature also acknowledges specific issues that may predominantly affect the international PhD cohort, such as studying in a second or foreign language, operating in a different academic culture, enormous pressure to succeed, and isolation being away from major social support (e.g., Elliot,

Baumfield et al., 2016, Elliot, Reid et al., 2016; Holliday 2017; Lee, 2017; Li & Zizzi, 2018). These extra layers of complexity facing international doctoral researchers could also exacerbate the PhD effect on their psychological well-being, at times, even to the point of dropping out (Laufer & Gorup, 2019). An authoritative report on (UK) international doctoral researchers' well-being highlights the probability that this cohort is more 'vulnerable to developing poor mental health' and that they are 'likely to experience a combination of risk factors', 'including their ability to adjust to a new culture, their existing cultural mores, finance, visas, family circumstances and potentially less access to family and friend support.' (Metcalf et al., 2018, pp. 23, 25).

Taking Metcalfe et al.'s (2018) argument on the greater mental health risk from which international doctoral researchers may suffer, and then linking it to Wisker et al.'s (2007) assertion of the importance of 'dialogue', we will investigate the role of communities as channels for developmental learning interactions and supportive relationships. These communities may be formal or informal, structured or unstructured, focused on personal and social aspects or on academic and disciplinary aspects, and they may exist within, between and/or outwith higher education institutions. In the next section, we review Etienne Wenger's concept of communities of practice (CoPs) and describe how and why CoPs can foster participants' general learning, adjustment to a new setting, and psychological well-being.

Communities of practice as praxis in education

Wenger (2010) defines communities of practice (CoPs) as social learning systems and as existing *in* social learning systems. Put simply, CoPs are 'groups of people informally bound together by shared expertise and passion for a joint enterprise' (Wenger, 2000, p. 139). It is worth noting that not all communities are CoPs. Wenger (2000) presents a helpful differentiation of communities of practice from other types of social groups within organisational settings. Since CoPs are conceptualised as social learning systems, their purpose is to develop members' skills and help members build and exchange knowledge. This is in contrast to informal networks where the goal is only to transfer knowledge; it is also opposed to formal groups or project teams that aim to deliver a specific product or accomplish specific tasks (Wenger, 2000). Wenger purports that what makes CoPs unique relative to other types of groups is that the members individually determine their level of passion, commitment, and identification with the group, which ultimately holds the CoP together.

We propose that the concept of CoPs can be understood, within the context of the international doctoral study, as modes of education-based praxis. The means of transforming theory into practice is often referred to as praxis. The term *education as praxis* refers to the manifestation of educational theory and pedagogy as lived and experienced practice, such as in classroom settings or as exhibited by the lived roles and responsibilities of doctoral researchers (McKerrow, 1989). Praxis is also cyclically reflexive, as it ‘starts with an abstract idea (theory) or an experience, and incorporates reflection upon that idea or experience, and then translates it into purposeful action’ (May & Sleeter, 2010, p. 110). In this way, praxis may be understood as the ‘development of the personal lens through which one sees the world’ (May & Sleeter, 2010, p. 116), and as a lens that continuously develops in response to environmental factors and lived experience (e.g., Shaffer, 2004). As education’s primary objective is often to develop the mind through which a learner understands and engages with the world, the notion of praxis well encompasses the reflexive process of internalising knowledge developed through education; this then informs the practice and experiential education of learners – such as through CoPs (see Freire, 1970; May & Sleeter, 2010).

CoPs may be understood as mechanisms of the ‘hidden curriculum’ – also referred to as the ‘informal tacit learning through socialisation’ with other people (Elliot, Baumfield, Reid & Makara, 2016, p. 738) – which foster a bridge between theoretical knowledge and practical knowledge in any learners, at even the most basic levels. For example, doctoral researchers are assigned to a team of supervisors that belong to a particular school, department, or institute within their university. They may also have friends that share similar interests or life situations with whom they regularly meet, as well as new neighbours and new communities while studying abroad. Further, they may use social media to connect to other researchers in their discipline, join a variety of professional disciplinary organisations, and have particular roles or projects they are working on with other people (e.g., teaching classes, working on collaborative research projects). However, simply being formally nested within a community (e.g., a researcher who is supervised by someone within a department) does not ensure that one is a member of the communities of practice that may exist in that department. It is only when doctoral researchers join communities that share a common enterprise, actively choose to participate, have a shared repertoire of language, norms, and artefacts, and mutually engage in the building of new knowledge, that they then become part of a CoP (Wenger, 2000). This notion is consistent with the literature concerning the practice of education, which suggests learners must engage in *mutuality* through involvement and engagement with informal constructs of

education (e.g., CoPs), as these engagements are the core of education as praxis (i.e., Meurs, 2012).

Several important elements of CoPs have implications for international doctoral researchers' experience. Firstly, when international students join CoPs, they further develop their identity. Wenger (2010) proposes that learning within CoPs transcends simply acquiring new skills and understanding, but also involves 'becoming a certain person – a knower in a context where what it means to know is negotiated' (p. 2). When international students 'become' doctoral researchers, they begin to identify with their new role, such as a scholar 'becoming' an expert in their discipline. However, the process of 'becoming' may also present psychological challenges (e.g., imposter syndrome) and perpetuate 'the sense that one is not good enough to be in academia' (Keefer, 2015, p. 20).

Secondly, Wenger (2010) proposes that one's identity within CoPs is a trajectory that accumulates experiences, events, stories, and relationships over time. By joining CoPs, international doctoral researchers experience ongoing identity development before, during, and after the doctoral journey. Doctoral researchers may self-identify (or not identify) as part of the CoP at different levels (e.g., lab, institution, country of study, discipline). Thus, CoPs may not only support general knowledge creation, but also support the learning and well-being of those nested within them. Through membership in CoPs, doctoral researchers' well-being is supported via: 1) increased competence as a result of social learning and adopting tools of intellectual adaptation; 2) autonomy in choosing to engage within a CoP; and 3) relatedness as a result of regular interaction and engagement with others within CoPs.

Aims and rationale

Although the concept of CoPs has been previously explored in relation to doctoral study, these investigations have typically focused on individual communities (i.e., case studies; see de Laar et al., 2017; Thein & Beach, 2010). By contrast, there has been less research specifically on international doctoral researchers' multifaceted CoPs involvement. Some relevant contributions emphasise the challenges and benefits of communities. As an example, Elliot, Baumfield, et al.'s (2016) investigation of the unique social spaces endorses the importance of having a 'third space' in supporting international doctoral researchers' experience of academic and societal acculturation.

This paper therefore makes a contribution to knowledge by using the concept of communities of practice as praxis through reviewing the literature on selected communities. By doing so, this paper aims to present an understanding of

how learning can be acquired within these communities during doctoral study. This discussion then highlights the benefits and challenges posed by each of these social learning contexts. Having equally considered the increased concern about doctoral researchers' psychological well-being as well as the potential benefits from communities of practice, our exploratory research questions are:

- What are the different forms of communities available to international doctoral researchers?
- How do these communities affect international doctoral researchers (e.g., academically, professionally, psychologically)?

Methodology

The different communities and activities in which doctoral researchers engage throughout their study abroad seem to comprise formal, semi-formal, and informal activities, and are further categorised into either 'doctoral specific' or 'academic general' (McAlpine et al., 2009). Weidman and Stein (2003) similarly note that doctoral researchers are socialised via 'professional, higher education institutional, and personal communities' during their academic journey (p. 643). To date, however, the existing research tends neither to consider the benefits and challenges that arise from simultaneous engagement in several CoPs, nor to consider how each of these communities relates to the social, cognitive, or overall psychological well-being of international doctoral researchers.

Taking existing research literature into account, we (two academics and eight international doctoral researchers) then brainstormed a list of CoPs from our personal observations and lived experiences. We considered this an important preliminary step leading to the identification of four CoP categories: institutional communities, disciplinary communities, cultural communities, and communities of common interests and needs. These four identified CoPs then served as the basis for conducting a review of research literature, using a variety of key words and Boolean operators (e.g., 'doctoral researchers' OR 'PhD students') on the EBSCOHost multidatabase. This was supplemented by scanning recently published research from thematically relevant journals for additional relevant studies. While we did not limit ourselves to reviewing only literature on international doctoral researchers, we were more focused on literature about different types of communities that have potential implications for international doctoral researchers. The following shared questions guided our literature review and writing: 1) How is the community defined in the literature and how structured is the community?; 2) What role does the community play for international

doctoral researchers (e.g., what outcomes does it influence)?; 3) What are the mechanisms through which this community influences international doctoral researchers?; 4) What does the literature suggest are ‘best practices’ for international doctoral researchers to join and thrive within that community?; and 5) Are there any interesting findings, unexplored questions, or debates in the research literature emerging in this area?

Four small groups initially led the review for each of the four communities. Given the wealth of information that emerged for each community, we strategically focused on only one or two examples of communities per category. Upon sharing and peer-reviewing each of the four communities, we revisited the literature as appropriate to add examples, definitions, and clarifications. Finally, our several collective group discussions informed the key messages conveyed in this paper.

Four communities of practice and praxis

As detailed in the Methodology section, our categorisation of different communities and discussion of a variety of labels led to a final list of four types of CoPs: institutional communities, disciplinary communities, cultural communities, and communities of common interests and needs – each with a wide range of aims and purposes, levels of formality, inclusivity, and degree of structure. In this section, we will critically review the extant research on these four broad types of international doctoral researchers’ CoPs, and their embodiment of educational practice – including the hidden curriculum. Whereas some CoPs are related to disciplinary traditions and methodological interests, others are a matter of personal choice and need. By virtue of the term *communities of practice*, there is an inclination to think that these communities are solely founded on educational premises, but that is not necessarily the case.

Institutional research communities

While often overlooked, higher education institutions provide international doctoral researchers with many foundational relationships which are not only central to their integration within their fields, but also contribute to their overall development as academics. Institutional research communities or communities inevitably formed as a result of joining a department within an institution arguably serve as social networks, which connect individuals within a specific organisational and/or professional environment. Where international doctoral researchers are concerned, the roles of institutional research communities within their academic research institutions are particularly important in shaping their

academic and research experiences. Specifically, engagement at the school level (e.g., department, specific subject area, peer-group) and at the college level (e.g., faculty, focused academic discipline, advisors), which can also be informed by other support provision, for example, mentoring, have been documented as greatly beneficial to international doctoral researchers (e.g., Ku et al., 2008). The ensuing sub-section highlights the significant role institutional research communities play in shaping international doctoral researcher development, while also contributing to an investigation of the mechanisms that facilitate these interactions.

An in-depth review of the literature suggests that these communities operate more effectively when they facilitate a sense of belonging amongst members, especially if done across multiple social domains (e.g., He & Hutson, 2018; H. Y. Kim, 2011; Roberts, 2006; Wenger, 2000). Considering that international doctoral researchers are particularly sensitive to feelings of isolation and estrangement, engagement with research communities at both the school and college levels of host institutions via regular participation at seminars, workshops, peer reviews and writing retreats, among others has notably been found to be most effective in stimulating a sense of membership amongst this population (e.g., Roberts, 2006; Wenger, 2000). Likewise, working in cohorts of like-minded doctoral peer groups, while also maintaining strong relationships with supervisors, not only empowers doctoral researchers, but also promotes their transition from learners to field-experts (e.g., Hung et al., 2005; H. Y. Kim, 2011; Palmer, 2016; Posselt, 2018). As a case in point, the monthly PhD Roundtable organised by Shan (2019, April) with her fellow international doctoral researchers is a platform for discussing social issues. Apart from aiming to gain an appreciation of the local culture and events, the discussion is intended for mutual development of participants' intercultural communication skills in a friendly and informal setting. Engagement with peer communities can be extremely effective. It serves as an ideal space for peers sharing knowledge via a friendly 'debate', challenging other participants' views and even offering critical feedback that not only sharpens analytical thinking but may also lead to improving the quality of writing.

Moreover, supervisors are often regarded as ambassadors beyond their faculties, and often act as brokers between doctoral researchers and the university; for this reason, supervisory relationships are classified as departmental level communities. At the departmental level, supervisory relationships foster feelings of belonging amongst international doctoral researchers and their relevant communities by actively engaging with them as in-group members, thereby reinforcing their identity as researchers and facilitating their connections within relevant groups (Roberts, 2006). Thus, these communities harboured within each of these institutional domains (i.e., school, college) are supported by the literature

as central mechanisms for international doctoral researchers' development and success (e.g., Rodwell & Neumann, 2008; Shacham & Od-Cohen, 2009).

Overall, international doctoral researchers are likely to benefit from engaging with institutional research communities within their host institutions across various social levels – whether in facilitating academic growth and research experience, promoting a supportive research environment, supporting doctoral transition, and/or providing practical support (e.g., linguistic competence, autonomous learning). The literature advocates that international doctoral researchers benefit the most from their working relationships when they are simultaneously engaged (e.g., contributing to, networking, etc.) with their institutional communities at various levels (e.g., H. Y. Kim, 2011; Palmer, 2016; Shacham & Od-Cohen, 2009). Interactions at these levels are particularly important in shaping the experiences of this cohort, as these communities often promote feelings of belonging between international doctoral researchers and their new professional, academic, and social environments. In this way, it can be argued that international doctoral researchers' engagement with the communities within their host institutions is not only invaluable to their scholarly development, in reducing imposter syndrome, and increasing a sense of belonging, but equally, to their further development as academics and/or independent researchers.

Disciplinary communities

International doctoral researchers often seek opportunities to join disciplinary communities that suit or are aligned with their research interests. Previous literature on disciplinary communities, however, has primarily discussed these communities in vague terms. A potential definition of 'disciplinary community' is a community in a particular field that can provide both established and emerging scholars with space and opportunity to motivate others and learn more about their respective research areas (Taylor, 2011). Engagement in disciplinary communities may include participating in annual conferences in one's subject area or attending research methods seminars/workshops. It is worth noting that these communities are not restricted to face-to-face interactions; participation in social media (e.g., Twitter) can also characterise a type of disciplinary community. This section discusses the specific roles that a few disciplinary communities may play for each doctoral researcher.

As one of the widely acknowledged and traditional types of disciplinary community among academics and doctoral scholars, communities formed through conferences have been widely discussed in the literature. Attending conferences provides opportunities for all doctoral researchers to interact with fellow researchers, leading to enhanced knowledge in the field and at times, even raising their professional profile within the research community that may assist career

progression (Avison et al., 2005). Improved confidence, increased understanding of methodological considerations and even of presentation styles gained through conference participation have been highlighted (Joshua, 2017). As Ai (2017) reflected on his experience of conference participation, it led him to appreciate its role in constructing and strengthening his academic identity. His identity reflected a gradual transition from being a novice learner to becoming a scholar, supplying him with more energy and confidence as he moved forward on his PhD journey. This then played an essential role in both his well-being and research productivity.

Interestingly, international doctoral researchers may play a variety of roles through attending conferences – from being a delegate, a presenter or even a session chair in doctoral consortium events (Avison et al., 2005). Irrespective of the role they play, their attendance allows them to meet with and listen to some of the ‘big names’ (or authorities) in their field and, in turn, become at ease with the conference atmosphere and social practices in this context. Conference attendance and participation can also help transform doctoral researchers from being passive attendees to being motivated and more engaged scholars – assisting their overall professional development (Ai, 2017; Joshua, 2017).

Despite the limited literature on the extent to which disciplinary communities can be of specific benefit to international doctoral researchers, it is fair to say that being part of disciplinary communities often extends beyond one’s institution and is likely to benefit all doctoral researchers – local and international alike. Compared to the traditional disciplinary communities, participating in online disciplinary communities, on the other hand, tends to serve similar functions and is also often found to be beneficial to all doctoral researchers. Social media is regarded as a loose term for web-based tools that involve participation and knowledge contribution (Hemsley & Mason, 2013) in which there is an increasing presence among academic communities, for example, Facebook, YouTube, and Twitter (Xu & Mocarski, 2014). Twitter will be discussed in detail as doctoral researchers increasingly use this platform as a way of engaging with their respective disciplinary communities.

Whereas Twitter offers a new platform for doctoral researchers to present themselves, their work, and their research ideas to a wider community (Bennett & Folley, 2014), it also helps develop virtual networks. These online networks can even complement traditional institutional networks and assist in coping with the loneliness associated with doctoral education (Rainford, 2016). Using Twitter during conferences can facilitate building a broad and rich scholarly network and, gradually, help develop a reputation as a highly skilled and competent researcher. By identifying novice and experienced academics with similar research interests, doctoral researchers can start interacting with these scholars, learning from them

while offering ideas, and keeping in contact during and even after the conference (Coad, 2017).

Nevertheless, attention needs to be paid to the potential drawbacks of using Twitter for academic purposes. Using Twitter could unintentionally lead to misinterpretation or simplification of ideas due to its restricted length, that is, 280 characters (Rainford, 2016). With the indefinite wealth of resources and fascinating ideas provided by other Twitter users, participation might also lead to doctoral researchers' mishandling their time. This section has demonstrated that some of the approaches to facilitating doctoral researchers' journey could be through joining disciplinary communities, for example, attending conferences or using Twitter. By joining these communities, international doctoral researchers are likely to gain confidence in the short term and also help build their academic identity in the long term.

Cultural communities

International doctoral researchers are exposed to cultural-related challenges that can have an impact on their sense of self. Unsurprisingly, this prompts them to seek support from people who share the same culture – referred to as 'co-nationals', or 'students from the same ethnic background or country' (Bodycott, 2015, p. 247). A larger community formed by those who regard themselves as co-nationals can then be considered a cultural community. These interpersonal relations between international doctoral researchers and their co-nationals are viewed as supportive of international doctoral researchers' social networks, acculturation, and their personal and professional development (C. Haslam et al., 2008; Jindal-Snape & Rienties, 2016; Ng et al., 2018). Generally, co-national groups may provide a means for international doctoral researchers to maintain their own cultural practices while studying abroad as well as for discussing and sharing within this group their views, their understanding, and experience of the new culture (Berry, 1997; Muldoon et al., 2017; Woolf, 2007).

On the positive side, contact within a co-national group enables international doctoral researchers to enjoy shared cultural identity and support – emotionally, academically, and socially. S. Haslam et al. (2005), for example, argues that individuals are more likely to give and receive support from others with whom they share a similar or the same social identity. Within this context, support is also more likely to be interpreted positively. According to Taha and Cox (2016), having a common language and general cultural similarities are likely to increase the chances of building friendships and international students' networks. As found in a number of empirical studies (e.g., S. Haslam et al., 2009), an investigation of overseas students' experiences and sense of belonging and membership suggests that these factors impact positively on both their learning

experiences and social lives, especially through offers of emotional support (e.g., friendship and adjustment to the host country). Affiliation in cultural communities generally helps the international student cohort alleviate potentially negative stressful emotions that overseas study could bring (Ng et al., 2018; Reicher & Haslam, 2006). In sum, membership in a cultural community can arguably have positive implications for international doctoral researchers' mental health and well-being thus facilitating academic adjustments and life transitions during overseas study.

At the same time, co-national groups can lead to conflict within the group. For example, Jehn's (1995) study highlights two types of 'intragroup conflicts' (p. 268). The first one is the conflict arising from having different perspectives, ideas, and interpretations of certain studying tasks (i.e., task conflict). The other conflict concerns the incompatibility of interpersonal relationships observed through being irritated or annoyed by other members in the same group (i.e., relationship conflict). As Y. Y. Kim (2001) noted, while studying abroad, international doctoral researchers' stress could be aggravated by intragroup conflicts (e.g., task conflict or/and relationship conflict) and can result in psychological distress. Y. Y. Kim (2001) argues that although these cultural communities may offer short-term language, academic, and social support, potential negative impact may likewise occur because this international student cohort may be encouraged to rely on the comfort of being in a co-national group rather than explore integration into the host culture and learn novel ideas and practices. In this respect, although cultural communities may help maintain or reinforce students' social-ethnic identity, group members may become less inclined to adapt to the customs and traditions in host countries, which might also contribute to intragroup conflict (Ward & Searle, 1991). As Bodycott (2015) has argued, intragroup conflict occurs due to 'personality differences, personal identity, expectations and goals, and stresses associated with acculturation' (p. 247). A number of studies indicate that even a positive transition when moving to a new country can have a negative impact on individuals' psychological well-being since the process of adjustment can create upheaval, challenge, and/or uncertainty (C. Haslam et al., 2008; C. Haslam et al., 2016; Ng et al., 2018). Paying attention to reducing possible conflicts, particularly for international doctoral researchers is, therefore, arguably essential.

Taken together, being part of cultural communities is likely to be beneficial to international doctoral researchers' psychological well-being as well as their general progression and academic performance. Equally, it can serve as a barrier to gaining new knowledge and skills that are pertinent in understanding how things operate in the new environment while studying abroad. Therefore, a better understanding of the role of a co-national group and factors leading to intragroup

conflict has potential practical implications for facilitating successful overseas study-related transition among the international doctoral community.

Community of common interests and needs

As overseas educational sojourners, international doctoral researchers are likely to face more challenges and difficulties than their domestic counterparts, both emotionally and psychologically (Metcalf et al., 2018). Such challenges may include acculturative stress and societal adjustment, as well as double loneliness and isolation (Elliot, Baumfield, et al., 2016; Sawir et al., 2008; Yeh & Inose, 2003). This section discusses how groups may spontaneously gather in informal communities based on their shared interests and/or needs, as a way of contending with these challenges. There is no specific recognition of the community of common interests and needs from the previous literature. The 'third space' concept that was proposed by Elliot, Baumfield, et al. (2016) towards international doctoral researchers' academic acculturation is one of the nearest conceptualisations of this type of community. 'Third space' refers to 'the informal spaces that foster personal learning, enjoyment and development through friendships, social activities and wider support networks' (p. 1189). The community of common interests and needs echoes the third space notion by seeking personal learning and enjoyment, not individually but as part of a group, enabling the formation of a community. In particular, two communities in relation to religious participation and physical activities are the most prevalent communities that have been discussed in the literature making them ideal examples of the fourth type of community.

With respect to religious participation, the literature has indicated two examples of international students' active engagement in religious communities (see Ding & Devine, 2017; Gardner et al., 2014; Hsu et al., 2009; Yu & Moskal, 2019). The first group represents the religious international students who are actively engaged in local religious communities. Both Hsu et al. (2009) and Gardner et al. (2014) have investigated Muslim students studying abroad in non-Muslim countries. Drawing upon their research, they suggest that spirituality and affirmative religious practices are positively related to Muslim students' perception of a high quality of life, stress alleviation, and cultural acculturation in New Zealand universities. The second group represents the non-religious international students who engage in church communities abroad. Research indicates, for example, that some Chinese students have been actively engaged in church activities, and even converted to Christianity during their PhD study abroad (Ding & Devine, 2017). Accordingly, experience of internal challenges common among the international student cohort, for example, suffering from negative mood due to loneliness or cultural adaptation, as well as external

circumstances, including intercultural engagements in the university – matched with the openness of Christian groups – are contributory factors for their participation (Ding & Devine, 2017; Yu & Moskal, 2019).

Another example of such a community relates to physical activity, which is widely recognised for its many physiological and psychological benefits. For example, participation in sports and physical activities can lower the risk of certain types of disease (Myers et al., 2004), reduce stress, depressive and anxiety symptoms, and instead increase one's self-esteem (Callaghan, 2004). Although there is existing research on physical activity participation among students, it is seemingly less common among international students (Suminski et al., 2002; Yan & Cardinal, 2013). In this context, the creation of a suitable social network in which international doctoral researchers are able to interact with either domestic, co-national, or other international students can help promote not only engagement in physical activity but also enable socialisation opportunities while harnessing their potential (physical and psychological) health benefits. Further, this kind of programme may not only provide social support for doctoral researchers' transition into the host culture, but also enable them to experience positive intercultural exchanges with both domestic and international groups. Potentially, joining a community of common interests and needs could then enhance international doctoral researchers' intercultural competence.

Yan and Cardinal (2013) describe the Peer Education System – a system for delivering knowledge that can improve not only international students' social learning but may also provide psychosocial support for various groups of students (Abdi & Simbar, 2013). A fully functioning peer education system is available in various formats and offers a number of activities, for example, participation in physical activities, development of self-efficacy, and peer counselling, where counselling with peers can provide social support and encouragement, and identify strategies for overcoming barriers (Dorgo et al., 2009). Cooperation between peers can be used to resolve the problems and further build peer interaction (d'Arripe-Longueville et al., 2002). Such a system exemplifies an ideal physical activity type of CoP.

As international students have become a significant group in the global higher education environment, promoting communities that can assist their academic and societal acculturation is arguably more important than ever. Finally, through interaction, via communities of students' common interests and needs, with other international doctoral researchers, local doctoral researchers, and even staff members, international doctoral researchers may be prompted to refresh their own interests, enhance their intercultural competence, and further develop their ability for greater and higher quality interactions in an increasingly pluralistic environment.

Discussion and conclusion

Wenger's (2010) communities of practice has provided a helpful framework in crystallising the features of these communities and the implicit roles that various communities available to international doctoral researchers could play during their journey. As 'social learning systems', CoP membership is characterised by self-selection and driven by shared passion and commitment that subsequently leads not only to identity and skills development, but also to shared creation of knowledge (as opposed to mere transfer of knowledge). Recognising that participation often starts at the periphery, eventually leading to full-blown engagement, it is to be stressed that active engagement rather than mere membership is central to each CoP. Reiterating these characteristics is pertinent in connection with each of the four communities we conceptually investigated in this paper.

Each of the four communities discussed conform to Wenger's communities of practice. In these communities, no participation or membership is forced. In fact, we strongly argue individuals' selective and informed strategy is key to participation since there are generally a large number of communities that international doctoral researchers could consider joining. In employing a strategic approach to selecting communities, consideration may vary based on their research discipline, subject, expertise, and specific areas of interest within and outwith academia. Nonetheless, our conceptual exploration of the direct and indirect effects of these communities has highlighted specific areas of growth and development: a) identity development, b) scholarly growth, c) psychological well-being, and d) personal and professional growth. This is synthesised in Figure 1 and is further elaborated in Table 1.

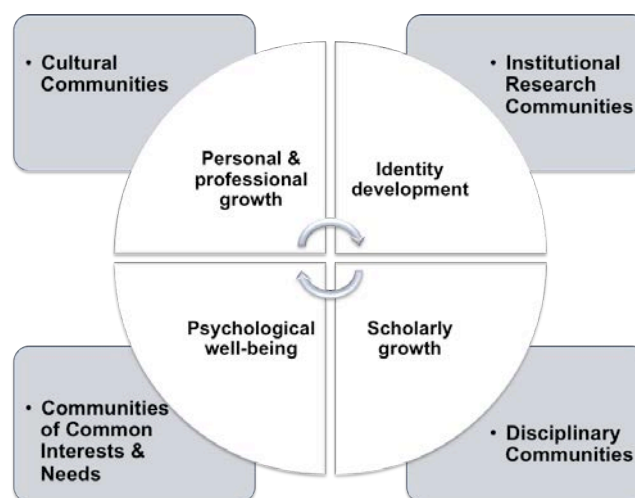


Figure 1. Direct and indirect impact of CoPs on international doctoral researchers' journeys.

Impact on international doctoral researchers*	Institutional research communities	Disciplinary communities	Cultural communities	Communities of common interests & needs
<i>Direct effects</i>	<ul style="list-style-type: none"> • Scholarly growth • Stronger relationships with staff and doctoral community • Supporting doctoral scholarship • Confidence building 	<ul style="list-style-type: none"> • Enhanced knowledge via interaction with scholars & experts • Personal and professional growth • Research dissemination and communication 	<ul style="list-style-type: none"> • Affiliation with familiar home cultural practices • Emotional, social and academic support • Supportive way of understanding a new culture 	<ul style="list-style-type: none"> • A sense of belonging • Physical and psychological well-being benefits; stress alleviation • Better self-esteem
<i>Indirect effects</i>	<ul style="list-style-type: none"> • A sense of academic membership • Foster feelings of belonging • Reinforcing identity as researchers 	<ul style="list-style-type: none"> • Academic identity development • Confidence building • Expanding networks • Building reputation in the field • Receiving academic support 	<ul style="list-style-type: none"> • Creating comfort zone based on friendships and networks • Supports psychological well-being • Affirming social-ethnic identity 	<ul style="list-style-type: none"> • Intercultural engagement and competence • Socialisation opportunities • Opportunities for spoken language practice
<i>Positive implications</i>	<ul style="list-style-type: none"> • A supportive research environment • Academic-modelling - source of inspiration • Preliminary exposure to post-PhD work 	<ul style="list-style-type: none"> • Motivation for future academic work • Professional development • Membership in the disciplinary community 	<ul style="list-style-type: none"> • Facilitates overseas transitions and academic adjustments 	<ul style="list-style-type: none"> • Facilitates overseas transitions and academic adjustments • Challenge to refresh one's interests
<i>Potential conflicts</i>	<ul style="list-style-type: none"> • Active engagement is essential, not an option • All CoP members being ready to engage, contribute knowledge (irrespective of benefit received) 	<ul style="list-style-type: none"> • Misinterpretation or simplification of ideas on Twitter • Mishandling of time 	<ul style="list-style-type: none"> • Intragroup conflicts arising from interpersonal relationships • Less preference to interact with the host culture/people is a learning obstacle 	<ul style="list-style-type: none"> • Potential conflicts with community members

Table 1. *Impact, implications and potential conflicts of CoPs on international doctoral researchers' journeys.*

*Various areas of growth and development—identity development; scholarly growth; psychological well-being and personal; and professional growth—are interlinked. Equally, they can manifest themselves as either 'direct' or 'indirect' effects of joining any of the four communities of practice.

Although many of these communities may not even be acknowledged at the end of a successful doctoral journey, Figure 1 and Table 1 both indicate their strong contribution in promoting, maintaining, or enhancing international doctoral researchers' identity, scholarly growth, and psychological well-being during the doctoral study – stressing the strong connections between academic and social life through engagement in meaningful activities within these communities. Whereas engagement with far too many CoPs may lead to doctoral researchers being overwhelmed and/or time mismanagement, a careful selective and strategic harnessing of the CoP resources via exploration and active participation can pave the way to personal and proactive building of knowledge and skills. Such engagements can subsequently maximise international doctoral researchers' overall learning experience. Through CoPs, they can experience a deeper sense of belonging and even assist their understanding of what a PhD entails. In turn, this can help sustain their academic engagement. Altogether, this 'community participation' component is also arguably significant in maintaining international doctoral researchers' physical health and psychological well-being.

Finally, understanding the impact of their engagement in CoPs can contribute to a broader appreciation of the notion of 'doctoral ecology' or the various interrelations between institutional, professional, societal, and private aspects in doctoral education (Barnett, 2018; Bengtson, in press). Such understanding offers reciprocal benefits since gaining a holistic perspective on doctoral ecology could also prompt an examination of the interconnections among these different aspects, generally leading to an improved doctoral learning experience—especially where the embodiment of educational practice (i.e., praxis) is concerned.

Accepting the premise of doctoral ecology can have practical implications for practice and further research. Starting with international doctoral researchers themselves, openness to how active engagement in these communities can impact on the quality of their doctoral experience is arguably worthy of consideration. It can be observed that, to date, a lot of institutional support provision is centred on formal communities, but less on informal ones. It would then be helpful to raise awareness of the hidden benefits of participation, even from 'non-academic' or 'social' communities as they impact on international doctoral researchers' overall well-being and access to the hidden curriculum, and ultimately on their academic and professional success. By doing so, supervisors and other staff members can assist in spreading this message through induction events, seminars, workshops, or via supervisory meetings. With this paper advocating the value of international doctoral researchers' greater engagement with CoPs to bring forth a holistic doctoral development, there is warrant for a concerted effort from doctoral researchers themselves, with their supervisors and/or with support from the

institutions to realise an active organisation, pursuit, and engagement in differing forms of CoPs.

As for the limitations of this conceptual paper, although we endeavoured to be thorough in the whole conduct of this review, this is *not* a systematic review. Whereas we acknowledge existing differences concerning the needs, challenges faced, strengths, and passions of international doctoral researchers, we treated international doctoral researchers as one whole cohort for this review of the literature. As for future studies, a systematic review is a possibility. Also, exploring further the first-hand effects of CoPs can be undertaken through pursuit of empirical research. One design could explore comparative experiential perspectives when engaging in CoPs (i.e., groups based on disciplines, gender, or countries of origin, as well as comparison with local doctoral researchers). Another design may consider taking a longitudinal approach to explore the extent of CoP participation's impact on various doctoral phases (beginning, middle, end phase). There may even be a possibility of researching higher education institutions' extant examples of best practice to support CoPs, the mechanisms that maximise their impact on various levels (e.g., personal, academic, professional), as well as the impact arising from engagement in multiple CoPs.

Although CoPs may not be a panacea for all international doctoral-related concerns and challenges, there is ample evidence from the reviewed literature to suggest that participation in these communities of practice is a crucial element of the doctoral support mechanisms that can help alleviate the challenges that this particular cohort encounters. Through these communities, international doctoral researchers' motivation, creativity, resilience, and momentum during the long and intense doctoral journey are often informally sustained by such structures through powerfully providing emotional, social, pastoral, and academic support. More than that, doctoral researchers' psychological well-being and their academic progress (leading to successful completion) are arguably intertwined. It is therefore arguable that CoPs are indispensable networks in realising a better quality of experience for the whole doctoral community. This notion is eloquently illustrated by C. R. Milne's metaphor:

We are like trees whose roots divide and spread outwards. Our neighbours are the same. Their roots too spread out and interlace with ours. Like trees in a wood, our trunks are quite separate but beneath the soil an inextricably tangled network.

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